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ABSTRACT

This document contains information about professional positions at the National Aeronautics and Space Administration (NASA). The following five types of information are included: (1) the kinds of work NASA does; (2) appropriate fields of college study for those who want to work for NASA (including space sciences, earth sciences, fluid and flight mechanics, materials and structures, propulsion and power, flight systems, measurement and instrumentation systems, data systems, facilities, operations, management, and life sciences and systems); (3) which NASA facilities use graduates with majors in particular fields; (4) education and experience requirements for various job ratings; and (5) how and where to apply for work at NASA. (CML)

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Career Opportunities in Aerospace Technology

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CE 053 115

Career Opportunities in Aerospace Technology

Announced by the National Aeronautics and Space Administration

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An Equal Opportunity Employer

The National Aeronautics and Space Administration (NASA) is an agency dedicated to achieving excellence in its technical mandates and missions. NASA recognizes that its most valuable resources in accomplishing these tasks are people. The agency is equally dedicated to achieving its technical missions and goals with a representative work force. To this end, NASA's policy is to provide equal employment opportunity for all persons, to prohibit discrimination in employment by NASA because of race, color, religion, sex, age, national origin, or nondisqualifying handicap and to promote the full realization of equal employment opportunity on the basis of merit and fitness through a continuing affirmative action program throughout the agency.

Issued: September, 1988

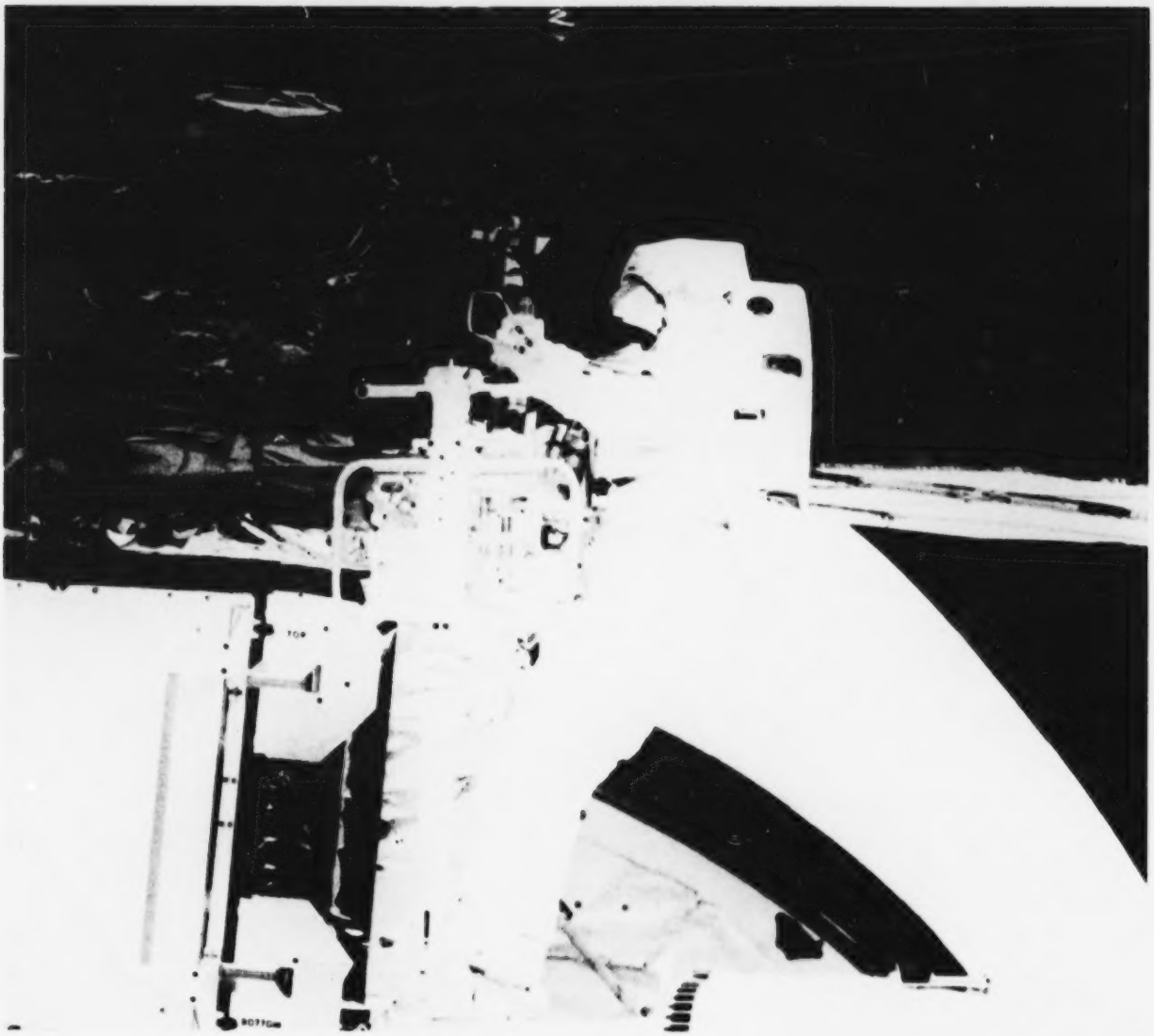
Inquiries concerning specific vacancies should be directed to the Center(s) of interest at the address(es) shown on the inside back cover.

National Aeronautics and Space Administration Announcement Number NN-100

The Work of NASA

The National Aeronautics and Space Administration (NASA), an independent civilian government agency, was established October 1, 1958. Although still a young agency, NASA has had phenomenal success in space research and exploration. NASA and its predecessor agency also have an unsurpassed record of achievement in aeronautics spanning more than sixty years.

NASA's mission includes all matters pertaining to the civilian space and aeronautical research activities of the Nation. Its work includes basic and applied research for the expansion of human knowledge of phenomena in the atmosphere and space; the improvement of the usefulness, performance, speed, safety, and efficiency of aeronautical and space vehicles; the development and operation of vehicles capable of carrying instruments, equipment, supplies, and living organisms through space; and the preservation of the role of the United States as a leader in aeronautics and space activities within and outside the atmosphere.



Astronaut James D. van Hoften, Mission Specialist, repairs the "Captured" Solar Maximum Mission Satellite. (Mission 41-C, April 1984)

SPECIALTIES OF AEROSPACE TECHNOLOGY (AST) and Appropriate Fields of Study

The descriptions represent NASA's work as of the date of this publication, but due to the rapidly changing frontiers of aerospace technology they are subject to change.

SPACE SCIENCES

Type of Work

This includes positions engaged in the study of (1) the earth and planetary atmospheres and ionospheres; (2) fields and particles in the interplanetary space environment; (3) the sun and extrasolar objects, and radiation emitted by them; (4) the chemical, physical and morphologic properties of moons, planetary bodies and other solid materials in the solar system and of samples therefrom; (5) data obtained from the above investigations; and, (6) development of instrumentation for these purposes. The following specializations are included in this group:

Aeronomy – Fields and Particles – Stellar Studies – Planetary Studies – Solar Studies

Appropriate Fields of Study

Required college majors for applicants qualifying on the basis of undergraduate education only:

Aerospace Engineering, Astronautical Engineering, Astronautics, Earth and Planetary Science, Electrical Engineering (except power), Electronics Engineering, Optical Engineering, Engineering Physics, Space Science. Other appropriate physical science, mathematics or engineering fields are qualifying if the major includes or is supplemented by one (1) Physics or Engineering Lab in: Electronics, Optics, Materials, Vibration, High Vacuum Theory, Heat Transfer or comparable field relating to aerospace instrumentation.

EARTH SCIENCES

Type of Work

This includes positions that are involved in such activities as development of future remote sensing missions: defining new or modifying existing aerospace sensing instrumentation that is used in obtaining data on characteristics and phenomena of the earth and its atmosphere; as well as utilization and operational control of such instrumentation; analysis interpretation, and application of data obtained through remote sensing in the biological and physical science disciplines. The following specializations are included in this group:

Earth Sciences Remote Sensing –Climate and Radiation Studies – Atmospheric Chemistry and Dynamics – Global Ecology Studies – Atmospheric Measurements – Applications Data Management – Science Missions

Appropriate Fields of Study

Required college majors for applicants qualifying on the basis of undergraduate education only:

Any appropriate field of engineering, physical or computer science or mathematics. Study must include or be supplemented by six (6) semester hours or the equivalent in appropriate life or other natural science courses, and include or be supplemented by at least two (2) courses which would provide knowledges of subjects appropriate to the vacancy being filled.

FLUID AND FLIGHT MECHANICS

Type of Work

This includes positions that are engaged in research, development, test and evaluation in the area of fluid and flight mechanics pertaining to aerospace vehicles.

Activities include investigations of the force and motion mechanics of vehicles in various atmospheric and celestial environments, wind tunnel testing and computational analysis of aircraft and spacecraft fluid flow phenomena and flight mechanics problems, studies of the aerothermodynamics of vehicles entering planetary atmospheres including dissociation and ionized gas effects, the development of systems to control, navigate and guide flight vehicles in planetary atmospheres and in space including trajectory analysis, investigations of the effects of structural vibrations and noise on the design and operation of vehicles, studies of space flight vehicle design and mission analyses, and research of the characteristics of electrically conducting fluids under the action of magnetic and electric fields. The following specializations are included in this group:

Flight Mechanics – Control, Navigation, Guidance and Systems – Fluid Mechanics – Flight Vehicle Acoustics – Heat Transfer

Appropriate Fields of Study

Required college majors for applications qualifying on the basis of undergraduate education only:

Aeronautical Engineering, Aeronautics, Aerospace Engineering, Astronautical Engineering, Astronautics,

Astrophysics, Electrical Engineering (except power), Electronics Engineering, Applied Mechanics, Engineering Mechanics, Mechanical Engineering, Nuclear Engineering, Nuclear Engineering Physics, Physics, Applied Physics, Engineering Physics. Other appropriate physical or computer science, mathematics or engineering fields are qualifying if the major includes or is supplemented by at least 12 semester hours (or the equivalent) of appropriate physical science or engineering courses. Course work should include or be supplemented by 9 semester hours (or the equivalent) of physics, thermodynamics, fluid dynamics or gas dynamics.

MATERIALS AND STRUCTURES

Type of Work

This includes positions engaged in research, development, design, manufacture, processing, test and/or evaluation work (1) on various kinds of metallic and non-metallic materials for use in aerospace systems and vehicles (2) into the effects of aerospace environments, loads and stresses on the structures and materials of aerospace vehicles and support systems and (3) the problems of friction and lubrication in relation to these systems. The following specializations are included in this group:

Materials – Structural Materials – Aerospace Metallic Materials – Aerospace Polymeric Materials – Friction and Lubrication – Structural Mechanics – Flight Structures

Appropriate Fields of Study

Required college majors for applications qualifying on the basis of undergraduate education only:

Aeronautical Engineering, Aeronautics, Aerospace Engineering, Astronautical Engineering, Astronautics, Chemical Engineering, Chemistry, Materials Engineering, Materials Science, Applied Mechanics, Engineering Mechanics, Mechanical Engineering, Nuclear Engineering Physics, Physics, Applied Physics, Engineering Physics, Structural Engineering, Welding Engineering.

Other majors will qualify if the major includes or is supplemented as shown below:

Ceramics or Ceramics Engineering (if 12 semester hours in refractory ceramics, cermets or protective coatings), Civil Engineering, Computer Science, or Geology (if 12 semester hours in strength of materials, structures, thermodynamics, and/or basic static and dynamics). Metallurgy or Metallurgical Engineering (if 12 semester hours in physical or adaptive metallurgy, high temperature metals and alloys, cermets). Mathematics or Nuclear Engineering (if 9 semester hours in physics, structures, materials, or other appropriate courses). Other appropriate physical science or engineering fields may qualify with appropriate supplemental courses.

PROPULSION AND POWER

Type of Work

This includes positions engaged in research, development, design, test and evaluation of aircraft and aerospace propulsion systems (e.g., liquid, solid, electrical, etc., separately or in combination) and aerospace power generation systems and their component parts and subsystems, including processes and systems for the direct and indirect conversion of energy into power for aerospace applications. The following specializations are included in this group:

Electric Propulsion Systems – Liquid Propulsion Systems – Solid Propulsion Systems – Electrical Power Systems – Direct Energy Conversion – Propulsion Flow Dynamics – Mechanical Components – Fuels and Combustion Processes

Appropriate Fields of Study

Required college majors for applicants qualifying on the basis of undergraduate education only:

Aeronautical Engineering, Aeronautics, Aerospace Engineering, Astronautics, Chemistry, Applied Mechanics, Engineering Mechanics, Mechanical Engineering, Nuclear Engineering, Nuclear Engineering Physics, Physics, Applied Physics, Engineering Physics.

Other majors will qualify if the major includes or is supplemented as shown below:

Electrical Engineering, Electronics Engineering, Applied Mathematics (or other field), if the major includes or is supplemented by one (1) course in Thermodynamics, nuclear physics, rocket propulsion fundamentals, gas dynamics or modern or molecular physics.

Astronautical Engineering, Chemical Engineering, Pure Mathematics (or other related field), if included or is supplemented by nine (9) semester hours (or the equivalent) in physics, thermodynamics, chemistry, or closely related fields.

FLIGHT SYSTEMS

Type of Work

This includes positions engaged in research, development, design, test, and evaluation of an aerospace flight vehicle and its component subsystems (including stages,

propulsion, control and guidance, data management and software, structure, payloads, etc.) or an aerospace flight vehicle and its related external systems (e.g., ground support, command and telemetry). The following specialties are included in this group:

Flight Systems Design – Flight Systems Test – Reliability and Quality Assurance – Flight Systems Safety – Experimental Manufacturing Techniques – Electrical Systems – Aerospace Flight Systems – Electronic Systems Failure Analysis – Crew Station Systems

Appropriate Fields of Study

Required college majors for applicants qualifying on the basis of undergraduate education only:

Aeronautical Engineering, Aeronautics, Aerospace Engineering, Astronautical Engineering, Astronautics, Biomedical Engineering, Materials Engineering, Materials Science, Applied Mechanics, Engineering Mechanics, Mechanical Engineering, Metallurgical Engineering, Metallurgy, Nuclear Engineering, Nuclear Engineering Physics, Physics, Applied Physics, Engineering Physics, Structural Engineering, Welding Engineering.

Other majors will qualify if the major includes or is supplemented as shown below:

Ceramic Engineering, Ceramics, Chemical Engineering, Chemistry, Computer Science, Computer Engineering, Electrical Engineering, Electronics Engineering, Mathematics (Pure or Applied), (or other related field) if includes or is supplemented by nine (9) semester hours (or the equivalent) in machine design, mechanics, hydraulics, dynamics, thermodynamics, mechanical design or mechanical measurement.

MEASUREMENT AND INSTRUMENTATION SYSTEMS

Type of Work

This includes positions that are engaged in research, development, design, fabrication, test and evaluation of equipment, systems, or techniques for detecting, referencing, computing, recording, and measuring physical conditions, and environments *and* communication, control, test, and calibration operations related to space and ground systems. The following specializations are included in this group:

Electromagnetic Systems – Optical Physics – Control Systems – Tracking and Telemetry Systems – Tracking Systems – Telemetry Systems – Telecommunications – Electronics of Materials – Electronic Instrumentation Systems – Guidance and Navigation Systems

Appropriate Fields of Study

Required college majors for applicants qualifying on the basis of undergraduate education only:

Aeronautical Engineering, Aeronautics, Aerospace Engineering, Astronautical Engineering, Astronautics, Astronomy, Astrophysics, Chemical Engineering, Electrical Engineering (except power), Electronics Engineering, Applied Mechanics, Mechanical Engineering, Engineering Mechanics, Nuclear Engineering, Nuclear Engineering Physics, Oceanography, Optical Engineering.

Other majors will qualify if the major includes or is supplemented as shown below:

Biomedical Engineering, Chemistry, Computer Science, Computer Engineering, Mathematics (Pure or Applied), Physics, Applied Physics, Engineering Physics (or other related field), if includes or is supplemented by two (2) courses in solid state physics, materials, optics, statics and dynamics, electricity and electronics, electron optics, kenetic theory of gases, electromagnetic propogation or radiation, semiconductors, vibration, high vacuum theory, information theory, or heat transfer.

DATA SYSTEMS

Type of Work

This includes positions engaged in research, development, design, test and evaluation of data handling and computing equipment for aerospace purposes (hardware) *and* the research and development of systems for reducing and computing data (software) or simulating aerospace conditions by use of mathematical models. The following specializations are included in this group:

Data Systems – Hardware Systems – Data Analysis – Theoretical Simulation Techniques – Computer Research and Development – Software Systems – Modelling

Appropriate Fields of Study

Required college major for applicants qualifying on the basis of undergraduate education only: *Computer Engineering*

Other majors will qualify if the major includes or is supplemented as shown below:

a. *Computer Science and Pure Math.*, are fully qualifying for *Data Analysis, Modelling* and *Theoretical Simulation Techniqes* positions without further course requirements.

For *Data Systems, Hardware Systems and Software Systems* positions, *Computer Science* and *Pure Math* are qualifying *if* the major includes or is supplemented by twelve

(12) semester hours (or the equivalent) in appropriate Physical Science or Engineering courses *and* includes or is supplemented by least two (2) courses shown under "b.(2)."

b. *Applied Math.* is qualifying *if* includes or is supplemented by at least two (2) courses listed below:
   (1) *For Data Analysis, Modelling, and Theoretical Simulation Techniques*
   numerical methods (or numerical analysis)
   linear algebra
   theory of equations
   differential equations
   mathematical statistics (if six semester hour course)
   operating systems
   theory of computation
   computer networks
   programming languages (e.g., Fortran, Cobol, etc.)
   data structures
   data base management
   computer graphics
   compiler construction
   computer architecture
   software engineering

   (2) *For Data Systems, Hardware Systems and Software Systems*
   electronics
   electrical networks
   solid state physics (for transistors, tapes, etc.)
   optics (for simulation)
   electricity and magnetism
   computer organization
   logic design
   control systems
   communication theory

c. Other appropriate physical science and engineering majors are qualifying *if* the major includes or is supplemented by six (6) semester hours (or the equivalent) in Mathematics beyond Basic Calculus *and* includes or is supplemented by at least two (2) courses shown above under "b."

FACILITIES

Type of Work

This includes positions engaged in (1) research, development, design, test, evaluation, and construction of facilities, systems, equipment, controls, and support facilities for use in aerospace research development, testing and operational activities; or (2) positions engaged in planning, developing, coordinating, and directing operation of aerospace flight vehicle experimental facilities and equipment. The following specializations are included in this group:

Experimental Facilities Development – Mechanical Experiment Equipment – Gas and Fluid Systems – Electrical Experimental Equipment – Experimental Facility Techniques – Facilities Systems Safety

Appropriate Fields of Study

Required college majors for applicants qualifying on the basis of undergraduate education only:

Aeronautical Engineering, Aeronautics, Aerospace Engineering, Architecture, Astronautical Engineering, Ceramic Engineering, Ceramics, Chemical Engineering, Civil Engineering, Electrical Engineering, Electronics Engineering, Industrial Engineering, Materials Engineering, Applied Mechanics, Engineering Mechanics, Mechanical Engineering, Metallurgical Engineering, Nuclear Engineering, Nuclear Engineering Physics, Optical Engineering, Structural Engineering, Welding Engineering

Other majors will qualify if the major includes or is supplemented as shown below:

Astronautics, Biomedical Engineering, Computer Science, Computer Engineering, Geology, Materials Science, Mathematics (Pure or Applied), Metallurgy, Physics, Applied Physics, Engineering Physics (or other related field), if includes or is supplemented by twelve (12) semester hours (or the equivalent) in appropriate physical science or engineering courses.

OPERATIONS

Type of Work

This includes positions responsible for developing and analyzing operational concepts, and planning spaceflight operations; management and integration of the operations activities required to support manned spaceflight missions; as well as positions that develop and validate flight procedures and crew activity plans, establish requirements for and conduct training of spaceflight crews, and those who serve as members of manned spaceflight crews or pilots of research and development aircraft. The following specializations are included in this group:

Flight Training – Flight Systems Operations – Mission Support Requirements and Development – Mission Operations Integration – Flight Activity Planning – Mission Specialist Astronaut – Pilot Astronaut – Research Piloting – Launch and Flight Operations – Aircraft Mission Operations

Appropriate Fields of Study

Required college majors for applicants qualifying on the basis of undergraduate education only:

Aeronautical Engineering, Aeronautics, Aerospace Engineering, Astronautical Engineering, Ceramic Engineering, Ceramics, Chemical Engineering, Civil Engineering, Electrical Engineering, Electronics Engineering, Industrial Engineering, Materials Engineering, Applied Mechanics, Engineering Mechanics, Mechanical Engineering, Metallurgical Engineering, Nuclear Engineering, Nuclear Engineering Physics, Optical Engineering, Structural Engineering, Welding Engineering.

Other majors will qualify if the major includes or is supplemented as shown below:

Astronautics, Biomedical Engineering, Computer Science, Computer Engineering, Geology, Materials Science, Mathematics (Pure or Applied), Metallurgy, Physics, Applied Physics, Engineering Physics (or other related field), if includes or is supplemented by twelve (12) semester hours (or the equivalent) in appropriate physical science or engineering courses.

Additional Requirements for Research Piloting Positions

NOTE: Research Piloting positions are extremely rare, and questions concerning the Astronaut Candidate Program should be addressed to: NASA-Johnson Space Center, Attn: AHX/Astronaut Candidate Program, Houston, TX 77058.

In addition to the basic education requirements (Successful completion of a standard professional curriculum in an accredited college or university leading to a bachelor's degree with major study in an appropriate field of engineering, physical science, life science, or mathematics), you must have a current FAA commercial pilot's license with instrument rating or a pilot and instrument rating from the armed service. One, or a combination, of the following criteria must also be met:

GS-9

A minimum of 900 hours of pilot in command (or first pilot) flight time which included at least 500 hours on jet aircraft having at least 3,000 pounds of thrust per engine; or

One (1) year of research piloting experience.

For GS-11

A minimum of 1,000 hours of pilot in command (or first pilot) flight time which included at least 500 hours on jet aircraft having at least 3,000 pounds of thrust per engine; or

Two (2) years of research piloting experience of which one year must have been equivalent to grade GS-9.

For GS-12/15

A minimum of 1,500 hours of pilot in command (or first pilot) flight time which included at least 500 hours on jet aircraft having at least 3,000 pounds of thrust per engine; plus one year of research piloting experience equivalent to the next lower grade in the Federal service; or three (3) years of progressive research piloting experience, one year of which was equivalent to the next lower grade.

For positions whose principal duties involve research and development of experimental rotorcraft, pilot in command (or first pilot) flight time in aircraft powered by engines having a total of 1,000 horse-powered or more in lieu of flight time in jet aircraft may be substituted at all grades.

MANAGEMENT

(Most of these positions are at senior grade levels, i.e., GS-12/15)

Type of Work

This includes positions engaged in program development, direction, and coordination of aerospace research, development, design, test, and operations efforts. The work includes determining and evaluating project/program requirements; overall long and short range planning; formulation and implementation of project/program management systems and controls; managing resources; identification and resolution of interface, integration, and technical problems; and conducting or participating in status reviews and documenting and reporting of status results, problems, concerns, etc.; and assessing contractor performance.

Appropriate Fields of Study

Required college majors for applicants qualifying on the basis of undergraduate education only:

Any field of engineering, physical science, life science, or mathematics related to the program or project. The major must include or be supplemented by twelve (12) semester hours (or the equivalent) in physical science or engineering courses and by mathematics through and including the integral calculus level.

LIFE SCIENCES AND SYSTEMS

(Most of these positions are located at the Johnson Space Center and the Ames Research Center)

Type of Work

This includes professional positions concerned with (1) research, development and application of man/system integration technology for use in the aerospace environment and (2) research pertaining to man and other life forms in the universe, their interaction with their natural and the space environments; psycho-physiological attributes of man

functioning as part of a man-machine system; countermeasures for problems that result when man is exposed to the space flight environment; determining requirements for life support and environment control systems, flight investigations and experiment payloads; origin and evolution of biological processes, systems, structures and species; and means for detection of life and life-related molecules beyond the earth.

Appropriate Fields of Study

a. Major study in biology (botany, zoology, biophysics, radiation biology, biochemistry, microbiology, physiology, toxicology), or in behavioral science (experimental, physiological or clinical psychology) or other appropriate field of life science, including or supplemented by at least 20 semester hours of physical science or engineering (undergraduate or graduate), or experience sufficient to provide a basis for understanding, use and interpretation of the highly specialized ground-based or inflight measurement, environmental control, vehicle control, and other equipment required for manned or organism bearing aerospace flights and voyages; or

b. Major study in an appropriate engineering or physical science, including or supplemented by at least 20 semester hours of physiology, experimental or physiological psychology, or other appropriate life science, or experience in biotechnology, human factors engineering or other appropriate life science field.

The undergraduate study, graduate study and any qualifying experience must provide the knowledges, skills and abilities required in the position being filled.

Best Opportunities for Employment with NASA

Best opportunities for employment with NASA are for graduates with majors in Aerospace, Mechanical, Electrical and Electronic Engineering, Physics, Computer Science, Mathematics or other related degrees.

WORK LOCATIONS DESIRED	Space Sciences	Earth Sciences	Fluid & Flight Mechanics	Materials & Structures	Propulsion Systems	Flight Systems	Measurement & Instrumentation Systems	Data Systems	Facilities	Management*	Life Sciences & Systems	Operations
Ames Research Center and Dryden Flight Research Facility	X	X	X	X		X	X	X	X	X	X	
Goddard Space Flight Center and Wallops Flight Facility	X	X	X	X	X	X	X	X	X	X		X
Johnson Space Center		X	X	X	X	X	X	X	X	X	X	X
Kennedy Space Center			X		X	X	X	X	X	X		X
Langley Research Center			X	X		X	X	X	X	X		
Lewis Research Center			X	X	X	X	X	X	X	X		
Marshall Space Flight Center	X		X	X	X	X	X	X	X	X		
Stennis Space Center	X	X								X		
NASA Headquarters										X		

*Generally senior-level positions, not entry-level.

Education and Experience Requirements and Basis of Ratings

Basic Education Requirements for All NASA AST Positions:

Successful completion of a standard professional curriculum in an accredited college or university leading to a bachelor's degree with major study in an appropriate field of engineering (not engineering technology), physical science, life science or mathematics is required. The degree must include or be supplemented by course work appropriate to the AST specialty for which application is made. (In some cases a graduate degree in an appropriate field or unconditional acceptance as a candidate for an advanced degree in an appropriate field by an accredited institution may be submitted. For applicants qualifying on the basis of graduate education and/or experience, any of the undergraduate majors shown below is acceptable if the required graduate study and/or professional experience is closely related to this type of work and provides the knowledges, skills and abilities required in the position being filled.)

General Listing Appropriate Academic Fields of Study for Aerospace Technology Positions:

Aeronautical Engineering
Aeronautics
Aerospace Engineering
Astronautical Engineering
Astronautics
Astronomy
Astrophysics
Biomedical Engineering
Ceramic Engineering
Ceramics
Chemical Engineering
Chemistry
Civil Engineering
Computer Science (Math., Statistics, Computers, *not* Business oriented)
Computer Engineering
Earth & Planetary Science
Electrical Engineering
Electronics Engineering
Geology
Geophysics
Industrial Engineering
Materials Engineering
Materials Science
Mathematics, Applied or Pure
Mechanics, Applied or Engineering
Mechanical Engineering
Metallurgical Engineering
Metallurgy
Meteorology
Nuclear Engineering
Nuclear Engineering Physics
Oceanography
Optical Engineering
Physics
Physics, Applied or Engineering
Space Science
Structural Engineering
Welding Engineering
or other appropriate physical science or engineering field.

Grade Level Requirements for GS-7 Through GS-15

For GS-7: In addition to the basic education requirement:

1. One year of professional experience; or

2. One full academic year or completion of the equivalent of 30 semester hours of graduate education in an appropriate field; or any equivalent combination of experience and graduate study; or

3. Completion of all requirements for a bachelor's degree which meets one of the following SUPERIOR ACADEMIC ACHIEVEMENT STANDARDS:

   a. A standing in the upper third of your college class or major subdivision (e.g., school of engineering) at the time you apply; or

   b. A grade average of "B" (2.90 of a possible 4.0) or its equivalent for all courses completed, either: (a) at the time of application; or (b) during the last 2 years of your undergraduate curriculum; or

   c. A "B +" (3.5 of a possible 4.0) average or its equivalent for all courses completed in a qualifying major field of study, either: (a) at the time of application; or (b) during the last 2 years of your undergraduate curriculum; or

   d. Election to membership in one of the national honorary societies (other than freshman societies) that meets the requirements of the Association of College Honor Societies.

Seniors may be rated provisionally eligible under 3-b. or c. if they had the required average after the junior year. They will be required to submit proof that they maintained the required average in their senior year; or

4. One year of appropriate student trainee experience; or at least 15 months of work experience in a cooperative work-study educational curriculum; or

5. For engineering positions, successful completion of a 5-year program of study (i.e., one designed to be completed in no less than 5 years) of at least 160 semester hours;

6. For engineering positions, if you have a professional engineering degree, up to 12 months of appropriate experience gained as a technician or technologist equivalent to the GS-5 level or higher may be credited in qualifying for GS-7; or

7. Successful completion of all requirements for two bachelor's degrees, one in an appropriate field of science or engineering; or

8. Six months aggregate of specialized experience or training, including 3 months gained after the junior year in a subprofessional, semiprofessional, or technician status, which may have been obtained in a laboratory or elsewhere during a summer period or assisting a professor, or on active military duty; or

9. Honors or elective positions indicating superior leadership other than scholastic, provided that your academic standing was in the upper half of your graduating class; or

10. Patterns of courses which have unusual preparatory value or direct relatedness to the particular aerospace specialty for which you are being considered; or

11. Creative research aptitude or special talent for NASA scientific or engineering work, as shown by evidence obtained and documented by means of certifications from college professors or officials, standardized questionnaires, or similar techniques.

For GS-9: In addition to the basic education requirement:

1. Two years of professional experience in an appropriate field including at least 1 year comparable in difficulty and responsibility to GS-7 level work in the Federal service within or closely related to the Aerospace Technology specialty for which application is made; or

2. Completion of all requirements for a master's or equivalent degree in an appropriate field or;

3. Two full academic years, or completion of the equivalent of 60 semester hours, of graduate education in an appropriate field; or

4. A combination of any of the special provisions for GS-7 listed above plus 1 year of appropriate professional experience comparable to the GS-7 level; or

5. Any equivalent combination of experience and graduate study.

For GS-11: In addition to the basic education requirement:

1. Three years of professional experience in an appropriate field including at least 1 year comparable in difficulty and responsibility to GS-9 level work in the Federal service within or closely related to the Aerospace Technology specialty for which application is made; or

2. Completion of all requirements for a doctoral degree (Ph.D. or equivalent) in an appropriate field; or

3. Three full academic years, or completion of the equivalent of 90 semester hours of graduate education in an appropriate field; or

4. A combination of any of the special provisions for GS-7 listed above plus 2 years of appropriate professional experience (at least 1 year must be comparable to the GS-9 level); or

5. Any equivalent combination of experience and graduate study; or

6. For some Research Positions Only: Completion of all requirements for a master's or equivalent degree for which at least 2 full academic years of graduate study are required.

For GS-12 through GS-15: In addition to the basic education requirements:

1. Three years of professional experience in an appropriate field including at least 1 year comparable in difficulty and responsibility to the next lower grade in the Federal service within or closely related to the Aerospace Technology specialty for which application is made; or

2. Any equivalent combination of experience and graduate study.

3. For some GS-12 Research Positions Only: Completion of all requirements for a doctoral degree (Ph.D. or equivalent).

GENERAL INFORMATION

• **Students**—Applications will be accepted from students who expect to complete the required education within 9 months after date of filing application. Students may receive and accept job offers from NASA prior to graduation but may not enter on duty before completing all required education.

• **Part-Time or Unpaid Experience**—Credit will be given for all pertinent experience of the type required, regardless of whether compensation was received or whether the experience was gained on a part-time or intermittent basis. Part-time or unpaid experience will be credited on the basis of the aggregate or total time actually spent in appropriate activities.

If you wish to receive credit for such experience, you must indicate clearly the nature of your duties and responsibilities in each activity, and the number of hours a week spent in each.

- Time spent in military service may be credited as an extension of experience gained immediately prior to entering the service or it may be credited on its own merits, whichever is more favorable.
- Positive evidence of highly creative or outstanding research, e.g., development of a basic principle, concept, method, approach or technique which opened the way for major advances in the field, may result in eligibility at one grade higher than that for which

you would normally be rated. This principle does not apply if you are eligible only on the basis of graduate study.

Citizenship – Employment in competitive positions in the Federal Government of the United States is restricted by Presidential Executive Order to U.S. citizens except where a noncitizen possesses unusually valuable scientific or technical skills not readily obtainable from a U.S. citizen.

- **Basis of Rating** – No written test is required. Qualifications will be evaluated by NASA professionals trained in the rating procedure, based on evaluation of experience, education, and training as shown on the application and on further corroborative and supplementary information which may be obtained.

- **How Positions are Filled** – Positions will be filled from among the candidates who meet all eligibility and qualification requirements for the specialty which is appropriate to the specific position vacancy.
- All qualified applications will receive consideration for employment without regard to race, color, age, religion, sex or national origin.

The XV-15, a tilt-rotor research aircraft, in hover flight.

How to Apply

What to Submit:

• APPLICATION FOR FEDERAL EMPLOYMENT (Standard Form 171)

Your eligibility and qualifications are based on the information contained in your application. It is most important, therefore, to prepare it as completely and accurately as possible. You will improve your chances for consideration and eliminate unnecessary delays if you observe the following:

• If applying for a research position, indicate and describe each segment of pertinent professional experience in sufficient detail to include: nature of the fields or specialties in which you worked; nature and extent of individual and team duties and the proportion of time in each; research or technical contributions personally made; level of difficulty and responsibility of the various positions held; and degree and nature of supervision given and received. Give special attention to research, development, and consulting work, including such functions as report writing, presentation of technical papers, membership on special committees, etc. If research work has been accompanied by teaching, show the percentage of time spent on each phase of work. Your description of professional experience need not be lengthy, but should include all pertinent information.

• If you are applying for GS-9 on the basis of having completed a master's degree, please include a description of your master's thesis topic.

• The three references called for on page 3 of Standard Form 171 should be persons who are familiar with your experience and/or education, especially in the area related to the occupational field for which you are applying.

• A college transcript or a list of college courses, grades and grade point average is required for entry level positions. The transcript or list must be included with your application. Students should include courses expected to be completed within 9 months of the date application is filed.

• CLAIM FOR 10-POINT VETERAN PREFERENCE (Standard Form 15) with documentary proof is required if claiming 10-point veteran preference (disability, widow, spouse or mother preference).

These forms may be obtained by writing one of the NASA Installations Personnel Offices.

Where to Apply:

If possible, contact a NASA recruiter through your College Placement Office. If this is not possible, mail your Application for Federal Employment (SF 171), list of college courses and other forms, as appropriate, to each NASA Installation Personnel Office where you would like to work, at the addresses shown below:

Ames Research Center, Moffett Field, CA 94035
Dryden Flight Research Facility, Edwards, CA 93523
Goddard Space Flight Center, Greenbelt, MD 20771
Headquarters, DP, Washington, DC 20546
Johnson Space Center, Houston, TX 77058
Kennedy Space Center, Kennedy Space Center, FL 32899
Langley Research Center, Hampton, VA 23665
Lewis Research Center, Cleveland, OH 44135
Marshall Space Flight Center, Huntsville, AL 35812
John C. Stennis Space Center SSC, MS 39529
Wallops Flight Facility, Wallops Island, VA 23337

NASA INSTALLATIONS